

WHAT IS CLAIMED IS:

1. Liquid heating apparatus comprising:

a vessel for holding a liquid to be heated;

5 a heating system for heating the liquid in the vessel;

a jacket wall outwardly circumscribing said vessel and defining therewith an insulation space between said vessel and said jacket wall, said jacket wall having an opening therein; and

an insulation dam structure including a hollow body portion having
10 opposite open outer and inner sides spaced apart along an axis circumscribed by said body portion, a first sealing portion laterally projecting outwardly from said open outer side, a second sealing portion on said open inner side of said body portion, and a force exerting portion disposed axially inwardly of said first sealing portion,

15 said insulation dam structure axially extending through said jacket wall opening with said first sealing portion overlying an outer side portion of said jacket wall extending peripherally around said jacket wall opening, said second sealing portion overlying an outer surface portion of said vessel, and said force exerting portion holding said first sealing
20 portion in an axially outwardly deformed sealing engagement with said outer side portion of said jacket wall.

2. The liquid heating apparatus of Claim 1 wherein said liquid heating apparatus is a water heater, said vessel is a water storage tank adapted to
25 hold a quantity of water.

3. The liquid heating apparatus of Claim 2 wherein said water heater is an electric water heater.

4. The liquid heating apparatus of Claim 1 further comprising a structure projecting outwardly from said vessel and shieldingly received within said insulation dam structure.

5 5. The liquid heating apparatus of Claim 4 wherein said structure projecting outwardly from said vessel includes an electrical component.

6. The liquid heating apparatus of Claim 1 wherein said force exerting portion includes a spaced plurality of exterior projections
10 disposed on said body portion inwardly adjacent said first sealing portion.

7. The liquid heating apparatus of Claim 6 wherein said exterior projections are generally triangularly shaped.

15 8. The liquid heating apparatus of Claim 6 wherein said exterior projections are formed integrally with said body portion.

9. The liquid heating apparatus of Claim 8 wherein said body portion is a plastic molding.

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10. The liquid heating apparatus of Claim 6 wherein said body portion has wall openings formed therein, and said force exerting portion includes tab structures projecting outwardly through said openings.

25 11. The liquid heating apparatus of Claim 10 wherein said tab structures are snap-fitted into said openings.

12. The liquid heating apparatus of Claim 10 wherein said tab structures are carried on locking/force exerting structures snap-fitted to said body portion.

5 13. The liquid heating apparatus of Claim 1 wherein said body portion is snap-fitted into said opening in said jacket wall.

14. The liquid heating apparatus of Claim 1 wherein said body portion is of a one piece molded plastic construction.

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15. The liquid heating apparatus of Claim 1 further comprising bracing structure disposed on an interior portion of said body portion.

16. The liquid heating apparatus of Claim 15 wherein said bracing
15 structure includes an inwardly projecting flange extending around the periphery of said open inner side of said body portion.

17. The liquid heating apparatus of Claim 15 wherein said bracing structure includes a spaced plurality of axially elongated ribs.

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18. The liquid heating apparatus of Claim 17 wherein said ribs include a facing pair of ribs disposed on opposite interior sides of said body portion.

25 19. The liquid heating apparatus of Claim 18 further comprising a handle structure having outer end portions secured to axially outer end portions of said facing pair of ribs.

20. The liquid heating apparatus of Claim 1 wherein said second sealing portion is a compressible sealing strip extending around the periphery of said open inner side of said body portion, and said force exerting portion further forces said second sealing portion into sealing engagement with said outer surface portion of said vessel.

21. The liquid heating apparatus of Claim 20 wherein said compressible sealing strip has indentations formed therein for sealingly receiving electrical wires.

22. The liquid heating apparatus of Claim 1 wherein said first sealing portion is a resiliently deflectable peripheral lip laterally sloped outwardly and toward said open inner side of said body portion.

23. The liquid heating apparatus of Claim 22 wherein said lip has a rectangular shape with first and second pairs of opposing side portions, the slopes of one of said pairs of opposing side portions being greater than the slopes of the other pair of opposing side portions.

24. The liquid heating apparatus of Claim 1 wherein said body portion has a generally rectangular shape.

25. The liquid heating apparatus of Claim 1 wherein said open inner side has a concave curvature.

26. The liquid heating apparatus of Claim 1 wherein said hollow body portion has separate axially outer and inner sections which are in a snap-fitted engagement with one another.

27. The liquid heating apparatus of Claim 26 wherein said first sealing portion is carried by said axially outer section.

28. The liquid heating apparatus of Claim 27 wherein said force
5 exerting portion includes an interior portion of said inner section interlocked with a corresponding portion of said outer section.

29. The liquid heating apparatus of Claim 27 wherein said force
10 exerting portion includes an exterior portion of said inner section forcibly engaging an inner side portion of said jacket wall.

30. The liquid heating apparatus of Claim 26 wherein said outer
section has axially extending resilient tabs snap-fittingly received in
corresponding locking openings in said inner section.
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31. The liquid heating apparatus of Claim 26 wherein said inner
section has an axially outer peripheral portion complementarily received
in said jacket wall opening.

20 32. The liquid heating apparatus of Claim 26 further comprising
bracing structure disposed on an interior portion of said inner section.

33. The liquid heating apparatus of Claim 32 wherein said bracing
structure includes an inwardly projecting flange extending around the
25 periphery of the open inner side of said inner section.

34. The liquid heating apparatus of Claim 33 wherein said bracing structure further includes a reinforcing rib portion laterally projecting axially from said flange.

5 35. The liquid heating apparatus of Claim 32 wherein said bracing structure includes a spaced plurality of axially elongated ribs.

36. The liquid heating apparatus of Claim 35 wherein axially outer end portions of adjacent pairs of said ribs are joined to form locking
10 recesses, and said outer section of said hollow body portion has axially inwardly projecting tab structures snap-fittingly received in said locking recesses.

37. The liquid heating apparatus of Claim 35 wherein said ribs include
15 a facing pair of first and second ribs disposed on opposite side wall portions of said inner section, and said inner section further includes an elongated handle structure longitudinally extending between and intersecuring axially outer end portions of said first and second ribs.

20 38. The liquid heating apparatus of Claim 37 wherein said outer section has an elongated cross member extending across its open outer side, said cross member being interlocked with said handle structure.

39. The liquid heating apparatus of Claim 38 wherein said handle
25 structure has an axially outer side rib received in an axially inner side recess formed on said cross member.

40. A foam dam comprising:

a hollow body portion having open outer and inner sides spaced apart along an axis circumscribed by said body portion, said open outer side having a laterally outwardly projecting, resiliently deflectable sealing lip sloped laterally outwardly and axially inwardly toward said open inner side of said body portion; and

a locking/force exerting structure positioned axially inwardly adjacent said sealing lip and projecting from said body portion generally transversely to said axis.

41. The foam dam of Claim 40 further comprising a resilient sealing structure secured to and extending around the periphery of said open inner side of said body portion.

42. The foam dam of Claim 40 wherein said locking/force exerting structure includes a plurality of external projections spaced apart around said axis.

43. The foam dam of Claim 42 wherein said hollow body portion is of a molded plastic construction and said plurality of external projections are formed integrally with said body portion.

44. The foam dam of Claim 42 wherein:

said hollow body portion has a wall portion circumscribing said axis and having a plurality of openings therein which are spaced apart around said axis, and

said locking/force exerting structure includes a plurality of locking/force exerting members snap-fittable to a portion of said foam

dam in a manner causing portions of said locking/force exerting members to extend outwardly through said plurality of openings to define said plurality of external projections.

5 45. The foam dam of Claim 44 wherein said locking/force exerting members are individually snap-fittable to said wall portion at said openings therein.

10 46. The foam dam of Claim 44 wherein each of said locking/force exerting members is an elongated resilient strip member having outer end portions receivable in an opposed pair of said wall openings to define said plurality of external projections.

15 47. The foam dam of Claim 44 wherein:
said foam dam further comprises a handle structure extending across said open outer side, and

each of said locking/force exerting members has an elongated body having a longitudinally central portion snap-fittable to said handle structure and having opposite end portions extendable outwardly
20 through said wall openings to define said plurality of external projections.

48. The foam dam of Claim 40 further comprising bracing structure disposed on an interior portion of said body portion.

25 49. The foam dam of Claim 48 wherein said bracing structure includes an inwardly projecting flange extending around the periphery of said open inner side of said body portion.

50. The foam dam of Claim 48 wherein said bracing structure includes a spaced plurality of axially elongated ribs.

51. The foam dam of Claim 50 wherein said ribs include a facing pair
5 of ribs disposed on opposite interior sides of said body portion.

52. The foam dam of Claim 51 further comprising a handle structure having outer end portions secured to axially outer end portions of said facing pair of ribs.

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53. The foam dam of Claim 41 wherein said resilient sealing structure has indentations formed therein for sealingly receiving electrical wires.

54. The foam dam of Claim 40 wherein said sealing lip has a
15 rectangular shape with first and second pairs of opposing side portions, the slopes of one of said pairs of opposing side portions being greater than the sloped of the other pair of opposing side portions.

55. The foam dam of Claim 40 wherein said body portion has a
20 generally rectangular shape.

56. The foam dam of Claim 40 wherein said open inner side has a concave curvature.

57. The foam dam of Claim 40 wherein said hollow body portion is of
25 a one piece molded plastic construction.

58. The foam dam of Claim 40 wherein said hollow body portion has separate axially outer and inner sections which are snap-fittingly engageable with one another.

5 59. The foam dam of Claim 57 wherein said sealing lip is carried by said outer section.

60. The foam dam of Claim 59 wherein said locking/force exerting structure includes an interior portion of said inner section interlockable
10 with a corresponding portion of said outer section.

61. The foam dam of Claim 59 wherein said locking/force exerting structure includes an exterior portion of said inner section projecting outwardly therefrom transversely to said axis.
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62. The foam dam of Claim 40 wherein said axially inner section has a bracing structure disposed on an interior portion thereof.

63. The foam dam of Claim 62 wherein said bracing structure
20 includes an inwardly projecting flange extending around the periphery of the open inner side of said inner section.

64. The foam dam of Claim 63 wherein said bracing structure further includes a reinforcing rib portion laterally projecting axially from said
25 flange.

65. The foam dam of Claim 62 wherein said bracing structure includes a spaced plurality of axially elongated ribs.

66. The foam dam of Claim 65 wherein axially outer end portions of adjacent pairs of said ribs are joined to formed locking recesses, and said outer section has axially inwardly projecting tab structures snap-fittingly receivable in said locking recesses.

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67. The foam dam of Claim 65 wherein said ribs include first and second ribs disposed on opposite side wall portions of said inner section, and said inner section further includes an elongated handle structure longitudinally extending between and intersecuring axially outer end portions of said first and second ribs.

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68. The foam dam of Claim 67 wherein said outer section has an elongated cross member extending across its open outer side, said cross member being interlockable with said handle structure.

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69. The foam dam of Claim 68 wherein said handle structure has an axially outer side rib receivable in an inner side recess formed on said cross member.

70. A method of damming off a portion of an insulation space extending inwardly from an opening in a jacket wall outwardly circumscribing a fluid containment vessel and defining, with said jacket wall, said insulation space, said method comprising the steps of:

5 providing a hollow body with open outer and inner sides spaced apart along an axis circumscribed by said hollow body;

 inserting said hollow body axially inwardly through said jacket wall opening to a sealing position;

 maintaining the inserted hollow body in said sealing position
10 utilizing a locking/force exerting structure associated with said hollow body and positioned axially inwardly of said open outer side thereof; and

 securing an axially inwardly sloped, resiliently deflectable outer sealing lip to said open outer side, the secured lip extending exteriorly around the periphery of said open outer side,

15 said outer sealing lip, when the inserted hollow body is maintained in said sealing position, being axially outwardly deflected and in sealing engagement with the outer side surface of said jacket wall around the periphery of said opening therein.

20 71. The method of Claim 70 wherein:

 said locking/force exerting structure includes exterior side wall projections formed on said hollow body,

 said inserting step is performed by snap-fitting said hollow body into said jacket wall opening, and

25 said maintaining step is performed by causing said projections to forcibly bear against inner side surface portions of said jacket wall.

72. The method of Claim 70 wherein said maintaining step includes the steps of forming external side wall projections on said hollow body after said inserting step, and causing said external side wall projections to forcibly bear against inner side surface portions of said jacket wall.

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73. The method of Claim 70 wherein said securing step is performed after said inserting step.

74. The method of Claim 73 wherein said securing step is performed
10 by snap-fitting said outer sealing lip to said hollow body.

75. The method of Claim 74 wherein said maintaining step is performed utilizing an outwardly projecting side wall portion of the inserted hollow body which bears against an inner side surface portion of
15 said jacket wall.

76. The method of Claim 70 wherein:

said method further comprises the step of securing a resilient seal structure to said inner side of said hollow body, and

20 said inserting step is performed in a manner compressing said resilient seal structure against the fluid containment vessel.